

Expanding Primary Care at
William Beaumont Army Medical Center to
Support an Increased Beneficiary Population
Resulting from
The
2005 Base Realignment and Closure Commission Report

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14. ABSTRACT

The 2005 Base Realignment and Closure Commission's report identifies Fort Bliss to receive approximately 48,000 additional active duty soldiers and family members. This constitutes the single largest population increase across the Department of Defense (DoD) resulting from this initiative. This study forecasts the primary care requirements necessary to support this influx to Fort Bliss from fiscal year 2007 through 2010. The methodology consists of utilizing the Army Staffing Assessment Model to determine staff levels, the Office of Personnel Management's salary tables, the DoD Space Planning Criteria to identify space requirements, and the DoD Facility Pricing Guide to provide construction costs. The results conclude that a total of 61 professional staff and 186 support staff are required to provide primary care to this population. Salaries necessary to sustain this requirement will total \$13.67M per annum. The infrastructure required to support this healthcare team will consist of 86,982 square feet of primary care space costing \$31.48M. The study recommends that a free standing primary care facility be constructed and staffed to support the arrival of beneficiaries.

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Abstract

The 2005 Base Realignment and Closure Commission's report identifies Fort Bliss to receive approximately 48,000 additional active duty soldiers and family members. This constitutes the single largest population increase across the Department of Defense (DoD) resulting from this initiative. This study forecasts the primary care requirements necessary to support this influx to Fort Bliss from fiscal year 2007 through 2010. The methodology consists of utilizing the Army Staffing Assessment Model to determine staff levels, the Office of Personnel Management's salary tables, the DoD Space Planning Criteria to identify space requirements, and the DoD Facility Pricing Guide to provide construction costs. The results conclude that a total of 61 professional staff and 186 support staff are required to provide primary care to this population. Salaries necessary to sustain this requirement will total \$13.67M per annum. The infrastructure required to support this healthcare team will consist of 86,982 square feet of primary care space costing \$31.48M. The study recommends that a free standing primary care facility be constructed and staffed to support the arrival of beneficiaries.

Disclaimer

The views expressed in this study are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, William Beaumont Medical Center or the U.S. Government.

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Introduction

William Beaumont Army Medical Center (WBAMC) is located in El Paso, Texas and provides primary and specialty healthcare to the military beneficiary population in the Fort Bliss catchment area. El Paso is a city with over 700,000 residents and has two major for profit health systems. Those systems are Sierra-Providence Health Network and Las Palmas Del Sol Regional Healthcare System. Southwestern General Hospital is the only locally owned private hospital in El Paso (Gerepka, 2002). Thomason hospital is El Paso county's only not-for-profit, community-owned hospital and healthcare system (Thomason, 2006). In addition, El Paso is a border city with Juarez, Mexico. Juarez has a population of approximately 2.2 million. El Paso serves as a major gateway for travel and commerce between the U.S. and Mexico. It is also an important distributing and manufacturing center of the Southwestern United States (Robert Locke, 2004). El Paso sprawls along the north bank of the Rio Grande at the far western tip of Texas. It lies in a desert in a

pass between the Franklin Mountains to the north and the Sierra Madre of Mexico to the south. Fort Bliss (established in 1854) is home to the Army's Air Defense Artillery Center, as well as, the Sergeant's Major Academy, and provides many jobs for the citizens of El Paso (Robert Locke, 2004). Fort Bliss consists of three primary garrison areas. There is Fort Bliss proper, Biggs Army Airfield, and William Beaumont Army Medical Center. All garrison locations are contiguous but are separated a major highway and a well-traveled city street (see figure 1).

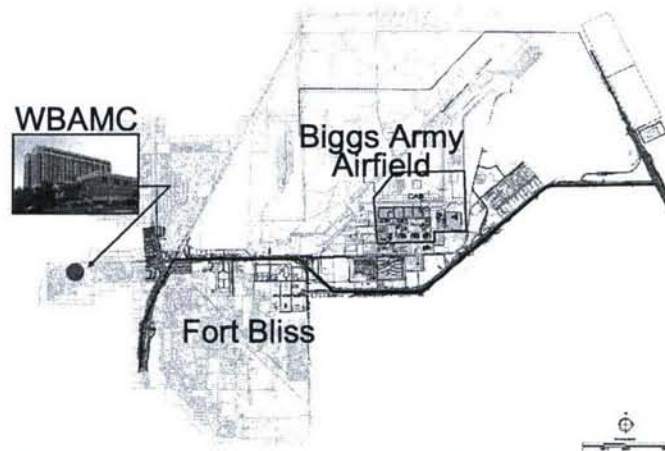


Figure 1. Map of Fort Bliss and Biggs Army Airfield

Source: Health Facility Planning Agency Project Planning Documentation Command In-Brief 20 March 2006

WBAMC provides healthcare support to over 12,000 active duty (AD) personnel, 19,000 active duty family members (ADFM), 28,000 Non Active Duty Dependents (NADD) and over 70,000 Veterans Administration (VA) beneficiaries (Leech, 2005). The medical center has 94 fully staffed beds and has the ability to expand to 152 beds within 72 hours. The total expansion capacity for the medical center is 352 beds (Leech, 2005). A few of these

services include primary care, comprehensive medical and surgical services, mental health services, and research and clinical investigative services. WBAMC also has a robust Graduate Medical Education program. The facility trains residents in orthopedics, internal medicine, general surgery, and transitional year programs (T.P. Baker, personal communication, May 17, 2006). In addition, the medical center provides phase II training for nurse anesthetists and practical nursing, in addition to, training for perioperative nursing, operating room specialists, and a myriad of other healthcare specialties (F.G. Atwood, personal communication, May 18, 2006). The facility is staffed with over 2,300 military, Department of the Army civilian, and contract personnel committed to providing excellent medical care to all beneficiaries (Leech, 2005). William Beaumont provides support to many other military installations to include White Sands Missile Range, Fort Huachuca, Holloman Air Force Base (AFB), Cannon AFB, Davis-Monthan AFB, and Luke AFB (C. Davis III, personal communication, May 18, 2006). WBAMC is the only level II trauma center in El Paso and provides over 10% of the trauma care to the community (J.A. Palmer, personal communication, May 19, 2006). Although WBAMC is a level II trauma center, the facility still receives level I and level II patients (B.E. Waddell, personal communication, 17 May, 2006). In addition, WBAMC is one of a few

military medical centers that has a contiguous Veterans Administration hospital (M.E. Ancker, personal communication, April 21, 2006). This relationship exists to provide seamless care for veterans in the El Paso and surrounding area.

Conditions that Prompted the Study

The Base Realignment and Closure (BRAC) commission is a commission established by Public Law 101-510 to provide Congress and the President "recommendations to realign or close military installations within the United States and its territories" (Department of Defense Base Realignment and Closure Report [BRAC Report], 2005, p.1). As a result of the BRAC 2005 findings, the Army is streamlining its inventory of installations by optimizing locations with military value. It is the goal of the commission to divest the U.S. government of military installations that are not relevant in supporting Army Transformation or supporting a Joint and Expeditionary Army (BRAC Report, 2005). Fort Bliss currently exists as a Training and Doctrine (TRADOC) installation. The BRAC 2005 commission and the Army intend on transforming Fort Bliss into a heavy maneuver installation that serves as the home of operational units (BRAC Report, 2005). This plan includes the relocation of the Air Defense Artillery Center and School and an ADA Brigade to Fort Sill, Oklahoma (BRAC Report, 2005). These recommendations from the commission serve to accommodate the return of various active

duty forces from outside the continental United States (OCONUS). As a result of the realignment of military troops and resources, Fort Bliss is expected to increase its beneficiary population from approximately 52,000 to an estimated 93,000 between the fiscal years of 2007 and 2010 (see figure 2).

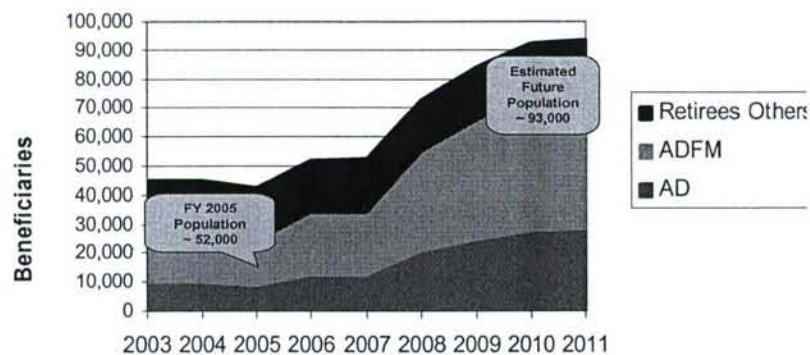


Figure 2. Fort Bliss Population Increase 2005-2011

Source: William Beaumont Managed Care Division

The Army's Strategic Environment

In September 2001, the United States began its Global War on Terrorism. The global war expanded in 2003 with the invasion of Iraq, also known as Operation Iraqi Freedom. Over the past six years the Army has been fully engaged in a wide spectrum of conflicts on a variety of fronts across the globe. In addition to prosecuting the global war on terrorism, the Army is posturing itself for future conflicts. There are a number of initiatives that the Army is undertaking to realize this end-state. Some of these initiatives include Army Transformation,

Integrated Global Presence and Basing Strategy (IGPBS), and the Base Realignment and Closure initiative (Fort Bliss Command Brief, 2005). All of these initiatives will affect Fort Bliss and the El Paso community. Army Transformation focuses on employing a lighter fighting force that will be more modular, self-contained, maneuverable, deployable, and lethal. IGPBS requires that the Army globally reposition itself in order to be postured to readily and quickly deploy a fighting force. This involves repositioning our military forces in the continental United States and abroad. These combined initiatives will affect Fort Bliss and the El Paso community.

The Strategic Value of Fort Bliss

Fort Bliss will receive the single largest increase of military personnel in the entire DoD. The reasons Fort Bliss was selected to receive such a large influx of troops are abundant. First, Fort Bliss is the largest post in the Army boasting 1.1 million acres of land. This is 9.3% of the total amount of the land the Army has in CONUS (see figure 3). Moreover, when White Sands Missile Range is included in the total acreage available to Fort Bliss, the number is a resounding 4.5 million acres. This number is 37.8% of the total land in the Army's inventory (Fort Bliss Command Brief, 2005).

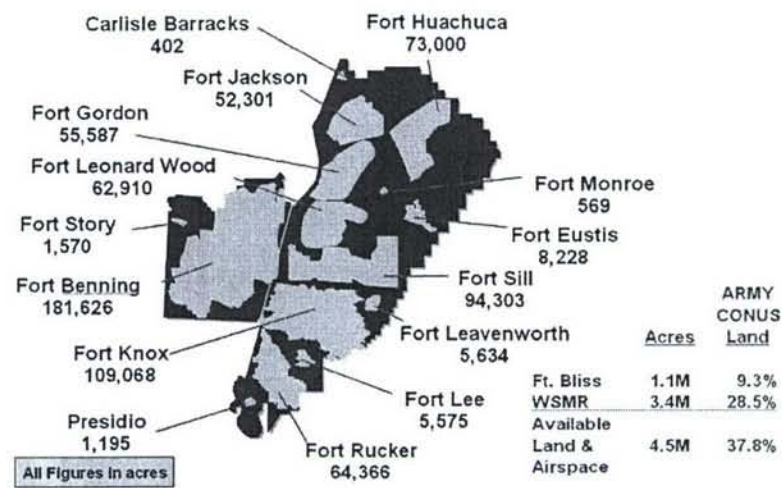


Figure 3. Largest Maneuver Post in the Army

Source: Fort Bliss Directorate of Plans, Training, Mobilization & Security (DPTMS) office

When conducting a size comparison, the land that encompasses Fort Bliss proper is as large as the state of Rhode Island. Including White Sands Missile Range into the size of Fort Bliss equates to the distance traveled when driving from Washington, D.C. to Trenton, New Jersey (Fort Bliss Command Brief, 2005). In addition, the available maneuver space at Fort Bliss is greater than that of the Army's National Training Center and the Joint Readiness Training Center combined (See figure 4). Complementing Fort Bliss's sheer size and maneuver space is its robust strategic mobility capability (Fort Bliss Command Brief, 2005). It has a functional and efficient rail operations center. The railhead can process 350 rail cars in a 24-hour period.

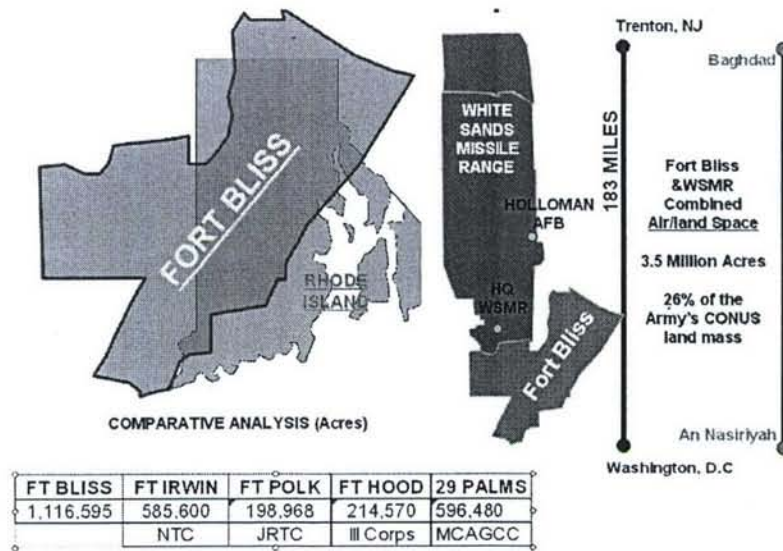



Figure 4. Fort Bliss Size Comparison


Source: Fort Bliss Directorate of Plans, Training, Mobilization & Security (DPTMS) office

In addition, Biggs Army Airfield has the Army's longest runway and is capable of accommodating a variety of the largest aircraft in the DoD inventory (see figure 5).

Rail Deployment



Air Deployment



- Fast, Efficient, and Safe Rail Operations
- Process 350 Rail Cars in 24 Hour Period
- Army's Longest Runway
- 10th Longest Runway in the US
- Total Airfield MOG (Maximum Aircraft on Ground)
 - 12 x C-5's, 18 x C-17's, 60 x C-130

Figure 5. Fort Bliss Strategic Mobility

Source: Fort Bliss Directorate of Logistics

Troop Stationing at Fort Bliss

Fort Bliss will receive an increase of 3 brigade combat teams from the 1st Armored Division (AD) currently stationed and headquartered in Europe. The 4/1 Cavalry (an existing Brigade Combat Team on Fort Bliss) will be re-flagged as a 1st AD asset. This will bring the strength of the 1st AD to 4 brigade combat teams (Fort Bliss Command Brief, 2005). A Sustainment brigade from Fort Hood and a Fires brigade from Fort Sill will begin arriving to Fort Bliss in FY 2007. An Aviation brigade will begin moving its troops to Fort Bliss in the first quarter of FY 2008 (Fort Bliss Command Brief, 2005). The headquarters element will begin arriving from Europe to Fort Bliss in the second quarter of 2008 and end in 2010. The 3 brigade combat teams will arrive between FY 2008 and FY 2010. The location for these assets will be Biggs Army Airfield (Fort Bliss Command Brief, 2005). Figure six illustrates the arrival and departure times for various units.

The purpose of this study is to forecast the primary care requirements necessary to support the beneficiary increases projected to relocate to Fort Bliss from 2007 through 2010. The study will identify requirements for manpower, the annual cost of manpower, clinical and administrative spaces, and the costs

associated with those spaces. Identified providers will include family practitioners, internists, and pediatricians.

FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
				4/1 Cav								HQ, 1st AD from Germany											
												1st UA				2nd UA				3rd UA			
								Sustainment BDE from Fort Hood															
								Fires BDE from Fort Sill															
												Aviation BDE from Fort Hood											
				31st ADA BDE & ADA School to Fort Sill																			

Figure 6. BRAC Timeline of Troop Movements

Source: Fort Bliss Directorate of Plans, Training, Mobilization & Security (DPTMS) office

Support staff is limited to registered nurses, licensed practical nurses, medical clerks, pharmacy technicians, laboratory technicians, radiology technicians, and medical record clerks. Primary care within the Fort Bliss beneficiary population area includes internal medicine, family medicine, and pediatric services. Ancillary services such as pharmacy, pathology, immunization, and radiology will also be included in the study. The scope of this project considers primary care provided within the Fort Bliss beneficiary population area. White Sands is not included in this study based on the assumption that all primary care received by the beneficiary

increase will be received within the WBAMC 20 mile radius. It is expected that the beneficiary population increases at Fort Bliss will result in expanded primary care services. Specifically, there may be a requirement for a freestanding facility.

The results of this study will be valuable to numerous stakeholders (see figure 7). These stakeholders include but are not limited to the Office of the Surgeon General (OTSG), the WBAMC Command, and the Army Health Facility Planning Agency (HFFPA).

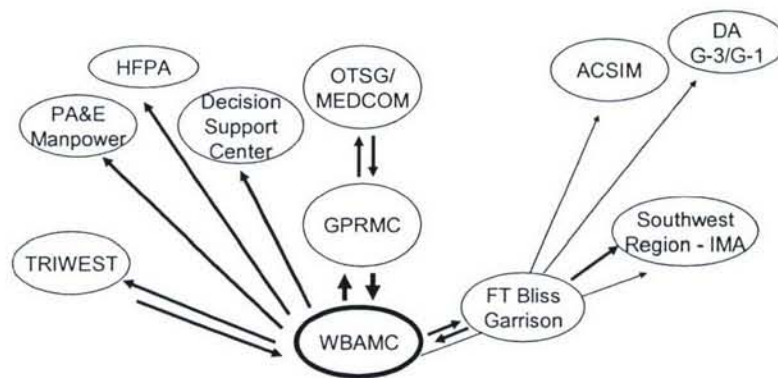


Figure 7. Fort Bliss BRAC Stakeholders

William Beaumont Army Medical Center GAO Entrance Conference: Planning for and Assessing 2005 BRAC Implementation Costs and Savings.

This study will provide insights to projected costs, healthcare, and space requirements that all the aforementioned stakeholders' desire. Moreover, it will serve as a roadmap for future military treatment facilities experiencing dramatic population increases.

A literature review was undertaken to identify established efforts to bring to bear upon the proposed research question. The literature has not yielded extensive studies or research that discusses how to expand primary care as a result of a drastic population increase. However, there are a number of models and studies that suggest methodologies for establishing appropriate manpower requirements in a clinical setting. In addition, the Department of Defense (DoD) uses various staffing models based on population that predict clinical and administrative staffing levels. Furthermore, the literature review will discuss various methodologies for delivering healthcare, productivity, and DoD space and cost methodologies.

Models Predicting Manpower

LaMar, Jacoby, Meyer, and Potter (1997) presented a model that can estimate the total number of healthcare providers needed to provide care to a specific population to include specialty care. The motivation for this model was the post-Cold War downsizing of military forces in addition to the significant healthcare reform debate that raged in the mid 1990s (LaMar, et al., 1997). A result of these two significant issues, spawned TRICARE, a conversion of the DoD military health system into a more efficient organization that resembled managed care organizations in the civilian sector. The key to success for TRICARE is a healthcare provider population that is

appropriately sized to effectively and efficiently provide service to patients (LaMar, et al., 1997). LaMar, Jacoby, Meyer, and Potter (1997) propose a mathematical model to assist healthcare leaders determine the appropriate number of providers for a particular beneficiary population. Their model "incorporates as variables the regional enrolled beneficiary population, military provider population, and TRICARE access standards. This workforce model, however, is applicable only to the peacetime mission of the Military Health System (LaMar, et al., 1997, p. 590)." The authors submit that one of the most important tasks that must be accomplished first is to accurately estimate the beneficiary population. The model relies heavily on accurate estimates of the enrolled population. Figure 8 illustrates the methodology used to generate the provider workforce estimation model (LaMar, et al., 1997). The model is divided into four stages. The first stage is to obtain the accurate enrolled population in the service area considered. The second step is to calculate the total number and mix of providers need to support the population by dividing the enrolled population by 100,000 and multiplying the number by the number for each provider specialty type. Adjustments may be needed to account for specific characters to the population or other contributing factors.

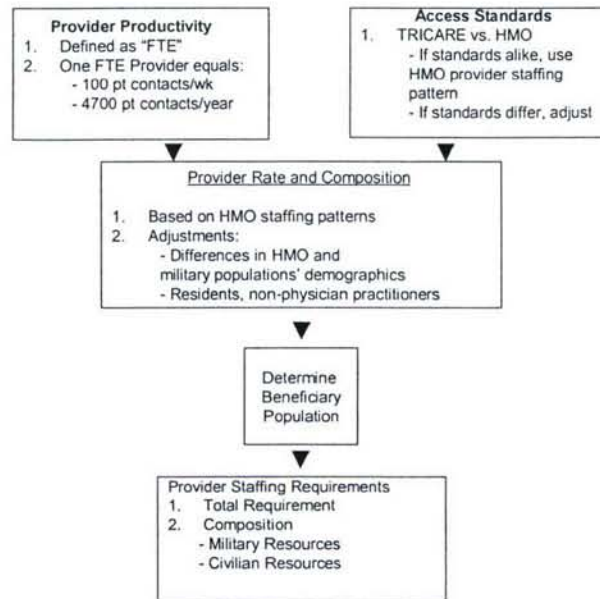


Figure 8. Provider Workforce Estimation Tool

Source: LaMar, J.E., & Jacoby, I., Meyer, M.G., Potter, A.L. Provider Workforce Model for Regional TRICARE Networks.

The third step is to determine the contribution of military providers to the workforce. The fourth step is to subtract the military provider contribution calculated in step three from the workforce estimate obtained in step two for each specialty type (LaMar, et al., 1997). Weiner and Cooper, authors whose physician manpower requirements estimation research is highly regarded in healthcare settings, estimate that 146.4 physicians per 100,000 population is required to serve the general population in a staff/group-model HMO. "According to 1992 statistics, the United States had approximately 245 active physicians per 100,000 population" (LeMar et al, 1997 p. 592). LeMar, Jacoby, Meyer, and Potter study estimated that 156 providers per 100,000 enrolled beneficiary population is

required to service their region. They believe that in the future determining the appropriate number and mix of healthcare providers will hinge upon the premise that "well planned, user-friendly, and easily integrated information systems are instituted at the outset of..." planning (LaMar, et al., 1997, p.595).

The literature also identifies the use of The Bremerton Enrollment Capacity Model. This model was build as a result of Health Affairs mandating that each primary care provider will strive for the goal of 1,300 to 1,500 empanelled patients. The Naval hospital Bremerton felt that the goal of Health Affairs did not correlate well with their historical experiences nor did it account for military specific requirements that remove providers from patient care (Helmerts, 2001). Helmerts (2001) determined that the preponderance of a clinician's time was spent on military readiness requirements, residency training hours, and indirect patient care factors. The military readiness requirements include but are not limited to disaster drills, urinalysis, physical training, Advanced Cardiac Life Support training, Basic Life Support Training, and Command inspections. Some of the items that consisted of residency training hours included clinic/procedural precepting, inpatient attending rounds, residency administrative duties, resident mentoring, applicant interviews, and post clinic conferences. The indirect

patient care factor is defined as "time spent doing work ideally performed by support staff" (Helmerts, 2001). The study suggests that unfilled billets, reduced authorizations personnel gaps may be the cause of the indirect patient care factor.

A 12-month review of patient visits and staff surveys provided data on how healthcare providers spent their day. Results determined that a significant portion of the provider's time was spent on military readiness, resident training and indirect patient care tasks (Helmerts, 2001). These results were quantified using historical data from the Composite Healthcare System (CHCS), Automated Data System (ADS), and the Medical Expense and Performance Reporting System (MEPRS). The study concluded that between 7% and 54% of a provider's time is spent on direct patient care (Helmerts, 2001).

There are a variety of staffing tools maintained by the Army Medical Department that can be utilized to estimate the necessary providers to support a population of beneficiaries. These models include The Enrollment Based Stationing model and the ASAM III Model. The Enrollment Based Stationing Model is a healthcare forecasting model that was developed at the Office of the Army Surgeon General. This tool is a Microsoft Excel based program that is populated with data from the M2 and EAS-IV databases (Office of the Surgeon General Enrollment Based Stationing Model [OTSG EBSB], 2005). In addition, this tool can

predict inpatient and outpatient workload and costs. More importantly, the tool allows the user to adjust population data for up to 6 years (OTSG EBSB, 2005).

The Automated Staffing Assessment Model (ASAM) model was developed by the Manpower Division at Headquarters MEDCOM to determine minimum essential staffing requirements for MTF. The ASAM model is a critical tool that assists MTF commanders in making decisions regarding operational staffing (Automated Staffing Assessment Model [ASAM Model], (2002). The ASAM model is a Microsoft Excel based model. It utilizes the Medical Group Management Association (MGMA) best practices and benchmarks in generating requirements. In addition, it adheres to the DoD Population Health Improvement Plan, Military Healthcare System Primary Care Optimization Plan, and the Army Medical Department's (AMEDD) Enrollment Capacity Plan.

The ASAM II model utilizes a Primary Care Enrollment Capacity Formula. The methodology is illustrated below:

Patient per Provider per year = visits per hour X hours per day
X days per month X months per year

The model utilized 3 visits per hour, 7.5 hours per day, and 20 days per month. The number resulting from this formula is 5,645 patients per provider per year. The model assumes 4.136 visits

per patient per year which yields 1,365 empanelled patients per provider. The model adjusted this number utilizing a variety of factors. These factors include an Army standard non-available time factor (22.5 hrs per month), military readiness factor (15.05 hrs per month), and continuing medical education factor (3.33 hours per month). Therefore, the ASAM model empanels 1,178 per primary care provider. The model provides 2.8 support staff per provider (ASAM Model, 2002). The support staff ratios are identified as:

- .5 Registered Nurse
- 1.8 LPN or Nurse Assistant
- .5 Administrative Assistant

Previous versions of the ASAM model were based on historical workload (ASAM Model, 2002). Manpower requirements reflected the work that had been done by the existing workforce and not the required workload generated by the beneficiary population. MTF commanders asked for a model based on projected patient population. The current iteration of the ASAM model, ASAM III, aligns resources with population requirements. This primarily was driven by the following two facts. First, the population-based models are used at the Health Affairs level to program and budget Defense Health Program resources. Second, unit level MTF commanders use population as justification to

request resources and to allocate resources within their organizations (ASAM Model, 2002).

Finally, the ASAM is a Headquarters, Department of the Army certified requirements determination model (ASAM Model, 2002). It assists commanders in business planning to meet local market requirements and accurately depicts Army medical requirements necessary to support peacetime healthcare delivery and medical operational readiness (ASAM Model, 2002).

DoD contractors also maintain forecasting models. TriWest Healthcare Alliance is a privately owned government contractor that administers the TRICARE program in the 21-state West Region (TriWest, 2006). TriWest maintains a forecasting model, known as the TriWest Capacity-Demand Forecasting Model, to assist in predicting BRAC requirements. The purpose of their model is to forecast changes in military treatment facility (MTF) capacity, beneficiary demand, and network loads over time at MTFs. The TriWest model utilizes the Graduate Medical Education National Advisory Committee standards to determine the number of providers for each specialty. There are a number of assumptions that the TriWest model utilizes. First, the model assumes historical rate of productivity per specialty for the healthcare providers. Second, the model assumes historical consumption within the MTF. Finally, the model assumes that some enrollees

will receive healthcare outside of the direct care system (Heroman & Rovard, 2006).

There are a number of limitations to the TriWest model. First, the model provides predictions for required healthcare providers only. Second, the model does not predict the required support staff necessary to assist healthcare providers. Finally, the TriWest model does not predict healthcare professional requirements for pharmacy or pathology (Heroman, et al, 2006).

Delivery of Healthcare

Donabedian (1988) proposed a clear and simple model for assessing quality in health care. His model proposed three domains. Those domains are structure, process, and outcomes. Donabedian's model is illustrated in figure 9 below. Donabedian defines structure as "the relatively stable characteristics

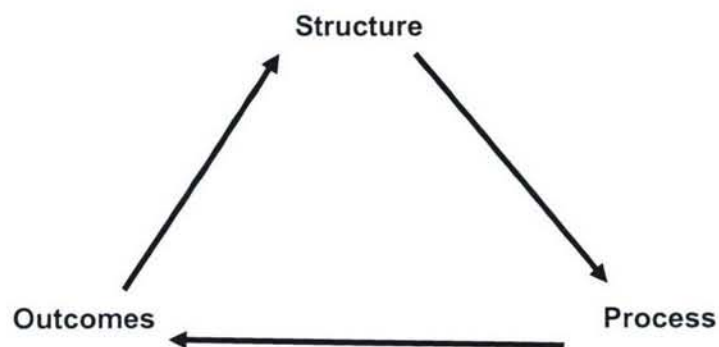


Figure 9. Donabedian's Model

Source: *Delivering Health Care In America: A Systems Approach*. Jones and Bartlett Publishing.

of the providers of care, the tools and resources they have at their disposal, and the physical and organizational settings in which they work" (Donabedian, 1988, p.743). Process refers to the provision of healthcare to include providers and management. Outcomes are the final result of care. These include health status after encounters, patient satisfaction, and recovery of patients.

Dr. Beverly Sibthorpe (2004) of the Australian Primary Healthcare Research Institute has proposed a conceptual Framework for Performance Assessment for Primary Health Care (FPAPHC) that is based on Donabedian's. This framework recognizes that performance must be measured against clearly defined objectives (Sibthorpe, 2004). The framework is composed of four components as opposed to Donabedian's three. These components are Stewardship, Organizational Structures and Processes, Processes of Care, and Intermediate Outcomes (Sibthorpe, 2004). Figure 10 illustrates the FPAPHC model. First, Stewardship identifies the functions that a government or a health care organization must perform in order to provide primary health care services to its population. This includes the development of policies with clear objectives, financing and funding arrangements, contracting and workforce development.

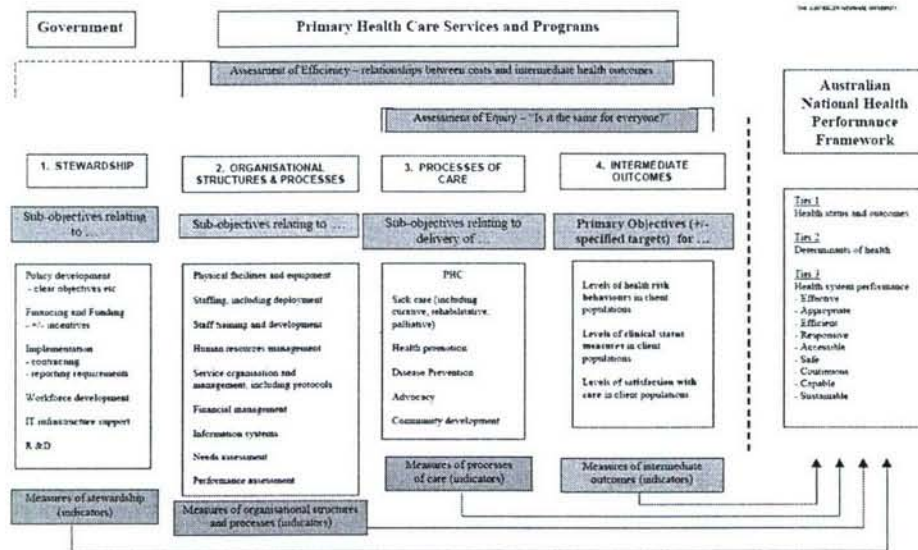


Figure 10. Framework for Performance Assessment in Primary Health Care

Beverly, Sibthorpe, Australian Primary Health Care Research Institute, 2004.

Second, the Organizational Structures and Processes are equivalent to Donabedian's 'structures'. These include facilities and equipment, human resource requirements, information management and technology concerns, and the development of protocols and operating procedures. Third, the Processes of Care are also equivalent to Donabedian's 'processes', however, in the case of FPAPHC these processes are the actions taken by providers and the patients in the provision of healthcare (Sibthorpe, 2004). "Processes of care are usefully distinguished from organizational processes, rather than being combined with them, because there are many important organizational processes (reference figure 10) worthy of identification and monitoring that do not involve direct patient

care" (Sibthorpe, 2004, p.3). Finally, Intermediate Outcomes are those changes in health status that result directly from the activities of the health care system. The two domains of outcomes are health status and user evaluation (Sibthorpe, 2004). In the DoD, organizational structures, such as facilities, are described within a document known as the Department of Defense (DD) form 1391.

The Military Construction Project data documentation, also known as the DD form 1391, was reviewed to extract pertinent information relating to primary care enrollment, provider, and construction requirements as a result of BRAC. The DD Form 1391 is a document that describes a potential military construction project. It provides a description of the project, to include general and economic justifications. This document is reviewed by Congress and either selected or denied funding. A DD form 1391 exists for a potential Consolidated Troop Medical Clinic to support Fort Bliss's population increase.

The DD Form 1391 was developed by the Army Health Facility Planning Agency (HFPA) and is based upon previous facility studies (master plans), population assessments, and interviews with the WBAMC administrative and clinical staff. The form suggests that an additional Troop Medical Clinic is required on Biggs Army Airfield to support the increase in beneficiaries as a result of BRAC (Department of Defense Form 1391 [DD Form

1391], 2006). In addition, the document states that Fort Bliss has no existing buildings that can be recapitalized and used as a MTF to support the increase in medical workload. Furthermore, there is insufficient capacity and space within existing military treatment facilities on Fort Bliss to absorb projected workload increases (DD Form 1391, 2006). The form states that existing medical treatment facilities and services are not enough to support the increased units as a result of BRAC. The project that is proposed will provide comprehensive troop and family outpatient care including family practice, pediatrics, well women services, radiology, pharmacy, laboratory, mental health, preventive medicine, physical therapy and other services" (DD Form 1391, 2006).

Productivity

According to Health Affairs policy memorandum 00-001 (2000), "The military treatment facility's capacity to enroll its beneficiaries is affected by the number of Primary Care Managers (PCM) at the MTF, their availability to see patients, readiness considerations, patient demand for visits, and productivity of providers (Health Affairs, 2000, p.1)." This "...is determined by availability of sufficient clinic support personnel, facility redesign and management actions that emphasize improved access" (Health Affairs, 2000, p.1). The

expectations for health care facilities within the Military

Health System (MHS) are that:

- 1,500 beneficiaries are enrolled per primary care provider
- 3.5 support staff per primary care provider
- 2 examination rooms per primary care provider
- 25 patients seen per day per primary care provider

All of these factors need to be managed to produce optimal results in terms of cost, quality, and access. Achieving increased productivity must be accomplished by improving business processes, support systems, and not by simply by increasing the burden on health care providers.

Health Affairs utilized the MHS Enrollment Capacity Planning Model to "... help facilities predict their capacity to provide primary care, standardize enrollment projections for resource allocation and will be used as a basis for managed care support contract bids" (Health Affairs 2000, p.3).

The model will allow facilities to:

- Predict the portion of the catchment area population which can be effectively enrolled
- Develop realistic targets for enrollment of specific populations to individual providers
- Identify factors which could be improved to increase enrollment capacity
- Receive financial resources commensurate with enrollment capacity and predicted workload
- Monitor performance and improve key determinants of enrollment capacity

The model is illustrated below in figure 11.

$$\text{Enrollees/Provider} = \frac{\text{weeks worked/year} \times \text{clinical hours per week} \times \text{visits/hour}}{\text{annual visits per enrollee}}$$

Figure 11. The MHS Enrollment Capacity Planning Model

Note: Formula is from Health Affairs policy memorandum 00-001 dated 6 March 2000.

Weeks worked was self explanatory and considered a provider's planned leave and continuing education opportunities. Clinical hours per week were identified as the number of hours that a provider spent in direct patient care or clinical activities. This included office or clinic visits, hospital rounds, surgery, and other direct patient care activities (Health Affairs, 2000). For military providers, a "Military Unique Factor" must be considered and the estimate reduced by approximately 8%. This "Military Unique Factor" accounted for additional requirements imposed on military providers such as military unique training and readiness. Visits per hour were defined as the number of patients that a provider could see per hour. Acuity of patients and the efficiency of the clinical support staff was the basis of this number. Annual visits per enrollee for military beneficiaries (non-Medicare eligible) can be expressed by historic trends or can utilize the industry standard of 3.5 visits per beneficiary. Several studies demonstrate that annual visits range from 3.1 to 4.3 per year (Health Affairs, 2000).

Department of Defense Space Planning Criteria

The Office of the Assistant Secretary of Defense Health Affairs [OASD (HA)] has the primary responsibility for outlining space criteria and standards for DoD medical facilities (Department of Defense Medical Planning Criteria for Health Facilities [DoD Medical Planning Criteria], 2005). Utilizing the enrolled beneficiary population, required providers, and the DoD medical space planning criteria, space requirements can be identified for MTFs ranging from small clinics to medical centers (DoD Medical Planning Criteria, 2005). The four major categories of space criteria are (1) patient care (2) support of patient care, (3) administration, and (4) support of administration (DoD Medical Planning Criteria, 2005).

According to the DoD Medical Planning Criteria (2005), there are many questions that need to be considered when analyzing space within a facility. First, is the space appropriate for mission accomplishment and for all required personnel? Required personnel include assigned personnel, volunteers, contractors and borrowed labor. One of the most common mistakes in analyzing space requirements is overlooking one or more of the functions of the space (DoD Medical Planning Criteria, 2005). Second, are environmental factors present that necessitate the support of a program not justified within the space planning criteria? Does the workload justify the space

increase? Third, could services be better provided through alternative methods? An example could be if requirements may be more economically met through the use of community providers or resources. Finally, is there potential for consolidation of staff support areas such as lounges, locker rooms or conference areas (DoD Medical Planning Criteria, 2005).

Once square footage is identified for a clinical or support space, a net to gross conversion ratio must be applied. This factor is utilized to better capture overall building size resulting from, but not limited to, dead space and wall thickness. An additional net to gross conversion must be considered after the square footage of each department has been aggregated. This factor considers dead space and wall thickness of contiguous departments. Finally, a third net to gross calculation must be applied. This last calculation accounts for additional construction considerations such as mechanical space, electrical space, building circulation, and half areas for the facility (DoD Medical Planning Criteria, 2005).

DoD Facility Pricing Guide

The DoD Facility Pricing Guide was consulted to gain an understanding of construction costs and inflation factors. The Facility Pricing Guide provides unit cost data and regional adjustment factors for various DoD facility types. The Office of the Deputy Undersecretary of Defense for Installations and

Environment is responsible for maintaining and updating the DoD Facility Pricing Guide (Department of Defense Facilities Pricing Guide, 2005). This guide provides a variety of facility planning, investment and costing analysis for a spectrum of facilities ranging from troop barracks to medical centers. This document is intended to assist in preparing DD Forms 1391s and other project-level estimates. In addition, the document provides tables that assist in identifying Unit Construction Costs, Area Cost Factors, Size Adjustment Factors, and Inflation rates.

Unit Construction Costs provides cost data for DoD facilities in dollars per square foot (Department of Defense Facilities Pricing Guide, 2005). The preponderance of unit costs are based on historic construction data on DoD projects awarded after January 1999.

The Area Cost Factors (ACF) are intended for Military Construction (MILCON) cost estimates. These factors assist in identifying construction costs in a number of areas in the United States and abroad. In general, the area cost factors are developed based on the construction market conditions. This factor considers construction materials, equipment items, labor and materials.

The Size Adjustment Factor is based on data analysis that shows a correlation exists between project size and construction

cost. Unit construction costs generally are lower for larger projects due to greater opportunities for material discounts and for spreading overhead costs over a greater number of units.

The guide also provides inflation factors that take into account that a project which takes a number of years to design and ultimately construct will incur additional cost increases (Department of Defense Facilities Pricing Guide, 2005).

Methods and Procedures

There were five subsets of the analysis to determine the primary care requirements required to support BRAC troop increases. First, as stated by LaMar, et al (1997), one of the most important tasks is to identify the beneficiary population. Therefore, population data was gathered on the existing population at Fort Bliss and the population increase projected to arrive between fiscal years 2007-2010. Second, in keeping with the literature, this population data will be entered into the ASAM model to predict manpower requirements. This study will consider the medical manpower of organic assets contained in the 1st AD. This study will consider the 1st Armored Division's physicians and physician assistants. Third, the annual salary costs will be identified for all providers and support staff based upon the ASAM model. Fourth, the amount of space required for primary care services will be provided based upon the DoD

Space Planning Criteria. Finally, the total facility cost for the primary care requirements will be generated utilizing the DoD Facilities Pricing Guide. The dollar figure projected utilizing this document will consider inflation rates.

Assumptions

There are a number of assumptions that must be utilized to make complex calculation more manageable. This study is based on the following assumptions:

1. All beneficiaries associated with BRAC increases will be TRICARE Prime.
2. All healthcare providers and support staff will be considered Government Scale workers excluding 1st AD providers.
3. 1st AD providers will be considered .5 FTE
4. All beneficiaries associated with BRAC will be enrolled at one healthcare facility

To understand the potential users of the Military Health System in the El Paso area, general beneficiary population information within the WBAMC catchment area was obtained. The TRICARE Operations Center (TOC) website was the source utilized to gather this data. The mission of the TOC is to "provide the MHS with meaningful, easy to use, web-based operational tools that help with the management of health care services" (TRICARE Operations Center Information Paper,

2006, P.1). This website was established in 2000 under the TRICARE Management Information Support Division in the TRICARE Operations Directorate of Health Plans and Operations. All Department of Defense (DoD) military treatment facilities (MTFs) upload facility data to the TOC through the Composite Health Care System (CHCS). The TOC transforms that data into useful management information that can be utilized by healthcare leadership to assist in management decisions. The database available at the TOC aggregates data and provides information at multiple levels of the DoD healthcare system (TRICARE Operations Center Information Paper, 2006).

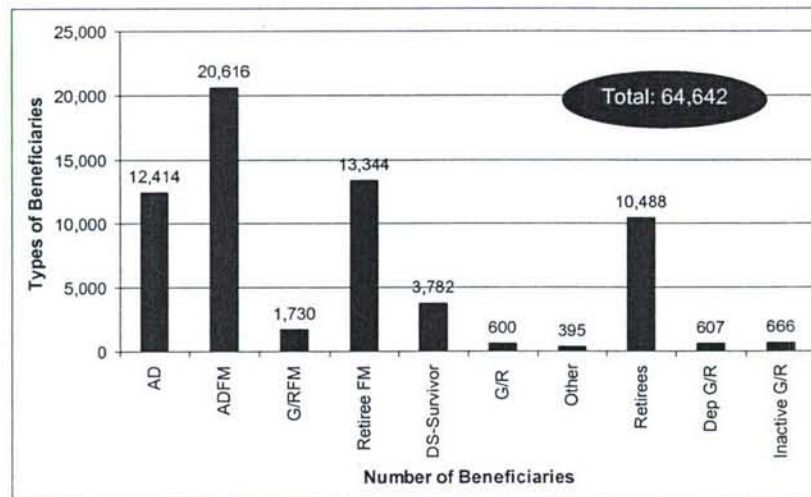


Figure 12. William Beaumont Catchment Area Population

Source: TRICARE Operations Center, 2006

The total number of eligible beneficiaries within WBAMC's catchment area is 64,642 (TRICARE Operations Center Website, 2006). This number is delineated into beneficiary categories in figure 12. Preliminary planning factors provided by the Fort Bliss BRAC planning cell propose that the active duty population increase for Fort Bliss over 5 years will be 20,125. There are a variety of projections from different Army activities predicting the number of family members that will accompany this active duty increase. The activities that produced various numbers for the family members are the Assistant Chief of Staff for Installation Management, Community and Family Support Center (CFSC), and the Corps of Engineers. This study will utilize the numbers projected by the CFCS. The CFCS population projections were used because the numbers utilize a methodology that .51 of the soldiers are married with 1.8 children. The CFCS predicts that there will be a total increase of 28,739 family members. The total population increase to Fort Bliss as a result of BRAC is 48,864. The tables below list the projected beneficiary population increases.

Table 1. Active Duty BRAC Population Projections

Units	2006	2007	2008	2009	2010	Total
BCT 1	3690	0	0	0	0	3690
BCT 2	0	816	2874	0	0	3690
BCT 3	0	0	0	3690	0	3690
BCT 4	0	0	0	0	3690	3690
CAB	0	0	0	2700	0	2700
FIRES	0	0	1366	0	0	1366
SUST	0	377	0	0	0	377
DIV	0	0	1163	0	0	1163
EAB	0	429	669	1468	714	3280
LOSSES	0	0	(2507)	(1014)	0	(3521)
Total	3690	1622	3565	6844	4404	20125

Source: Fort Bliss Directorate of Plans, Training, Mobilization & Security (DPTMS) office

Table 2. CFSC Family Member Projections

Dependant	2006	2007	2008	2009	2010	Total
Spouses	1882	827	1818	3490	2246	10264
Children	3387	1489	3273	6283	4043	18475
Total Family Members	5269	2316	5091	9773	6289	28739
Total School-age	2134	938	2062	3958	2547	11639
0-5 years (37%)	1253	551	1211	2325	1496	6836
6-12 years (34%)	1152	506	1113	2136	1375	6281
13-18 years (29%)	982	432	949	1822	1172	5358

Source: Fort Bliss Directorate of Plans, Training, Mobilization & Security (DPTMS) office

The ASAM shall be used to determine primary care staffing requirements resulting from BRAC increases. This model was selected because it is population based and sanctioned by the MEDCOM Manpower and Force Management Directorate. In addition, this model provides manpower projections for support personnel and ancillary services such as pharmacy, pathology, and radiology (the TriWest model does not consider these factors). Moreover, the ASAM is an excellent tool for projecting staffing

requirements under different scenarios and is often used by the Resource Management Division at WBAMC.

Once the number of providers and support staff is identified through entering the population numbers into the ASAM model, costs associated with salaries can be determined. The salary figures were based upon the General Schedule (GS) pay scale and come from the Office of Personnel Management. Recommended GS pay grades and steps were provided by the WBAMC Resource Management Division and were based on historic pay levels. In addition, these salaries include an additional 28% benefit factor. A benefit factor is added to all GS salaries and is paid by the government. This factor accounted for health, insurance, life insurance, Medicare, and social security.

The Directorate of Combat and Doctrine Development at the AMEDD Center and School provided the Table of Organization and Equipment for the 1st AD (see appendix I). Utilizing this identified structure, the Army Force Management Support Agency web portal was utilized to identify the physicians and physician assistants embedded within the 1st AD (see appendix J). The total number of providers in the 1st AD was 57 consisting of 24 physician and 33 physician assistants.

The Department of Defense Space Planning Criteria was utilized to identify the required space to support the providers and support staff. In addition, the space requirements generated

by the DoD Space Planning Criteria were reviewed for accuracy by WBAMC department heads and facility planners from HFPA. Finally, a construction cost was associated with the space requirements utilizing DoD Facility Pricing Guide.

Results

The ASAM model projects that a total of 61 healthcare providers and 186 support staff is required to support the beneficiary population increase of 48,864 resulting from the re-stationing of the 1st Armored Division to Fort Bliss. Weiner (1994) estimated that 146.4 physicians per 100,000 population is required to provide adequate healthcare. This number equates to 71.5 providers for 48,864, which is only 10.5 more providers than predicted by the ASAM model. Based on this figure, the provider to support staff ratio is 1:3. Of the 61 providers and professional staff, 32 are family practice physicians. Only 13% of the physicians account for pediatric care. Of the 186 support staff, 21.5 are registered nurses and 77.4 are LPNs. There is not a full FTE required for immunizations. The required manpower to service primary care is delineated in the table below.

The final cost for professional and support staff is \$13.67M. The total annual cost for professional and support staffs are \$4.98M and \$8.68M respectively. The cost of the professional staff makes up over 36% of the total cost of

salaries. The professional staff's GS ratings varied from GS-12 step 10 to GS-15 step 10.

Table 3a. ASAM Physician Manpower Requirements

Family Practice	32.00
Internal Medicine	3.00
Pediatrics	8.00
Laboratory	9.00
Pharmacy	7.00
Radiology	2.00
Total	61.00

Table 3b. Provider Costing Data

Professional Staff						
Specialty	Providers	GS Rating	Salary	Benefits Factor	Final Salary	Total Cost
Family Practice*	3.50	GS-15 Step 10	\$131,157.00	1.28	\$167,880.96	\$587,583.36
Internal Medicine	3.00	GS-15 Step 10	\$131,157.00	1.28	\$167,880.96	\$503,642.88
Pediatrics	8.00	GS-14 Step 10	\$119,281.00	1.28	\$152,679.68	\$1,221,437.44
Laboratory	9.00	GS-15 Step 10	\$131,157.00	1.28	\$167,880.96	\$1,510,928.64
Pharmacy	7.00	GS-11 Step 10	\$92,389.00	1.28	\$118,257.92	\$827,805.44
Radiology	2.00	GS-15 Step 10	\$131,157.00	1.28	\$167,880.96	\$335,761.92
Total						\$4,987,159.68

* The 1st AD will provide a total of 57 physicians and physician assistants at .5 FTE leaving a requirement fill of 3.50 Family Practice FTEs. Salaries are based on historic pay rates provided by the WBAMC Resource Management Division.

Table 3c. ASAM Support Staff Requirements and Cost Data

Specialty	Providers	GS Rating	Salary	Benefits Factor	Final Salary	Total Cost
RN	21.50	GS-10 Step 4	\$53,248.00	1.28	\$68,157.44	\$1,465,384.96
LPN/NA	77.40	GS-5 Step 4	\$32,755.00	1.28	\$41,926.40	\$3,245,103.36
Medical Clerk	21.50	GS-4 Step 4	\$27,028.00	1.28	\$34,595.84	\$743,810.56
Advise Nurse	4.30	GS-10 Step 4	\$53,248.00	1.28	\$68,157.44	\$293,076.99
Immunizations	0.33	GS-5 Step 4	\$32,755.00	1.28	\$41,926.40	\$13,919.56
Medical Records	12.12	GS-6 Step 4	\$34,761.00	1.28	\$44,494.08	\$539,401.73
Laboratory Tech	23.00	GS-7 Step 4	\$38,627.00	1.28	\$49,442.56	\$1,137,178.88
Pharmacy Tech	12.00	GS-5 Step 4	\$31,185.00	1.28	\$39,916.80	\$479,001.60
Radiology Tech	14.00	GS-8 Step 4	\$42,779.00	1.28	\$54,757.12	\$766,599.68
Total	186.16				Total	\$8,683,477.33

Salaries are based on historic pay rates provided by the WBAMC Resource Management Division.

Pediatricians and pharmacists garner the lowest salaries among the professional staff. The registered nurses are paid the highest of the support staff at \$68,157.44. The radiology technician has the second highest salary at \$54,757. The medical clerk is paid the least at \$34,595.84.

Utilizing the DoD space planning criteria, space requirements for primary care and ancillary services are projected to consume 86,982 square feet. This number includes mechanical space, electrical space, building circulation, and half areas. Square footage totaling 1,000 square feet is identified for restrooms. The family practice gross square footage is 37,098 or 57% of the total space. Allergy and Immunology accounted for the least amount of gross square footage at 1,653 square feet. A detailed identification of space requirements for individual services is illustrated in table 2.

Table 4. Square Footage Analysis

Department	Net Square Footage	Net/Gross Ratio	Actual Gross
Primary Care	27480	1.35	37098.00
Pharmacy	3560	1.25	4450.00
Pathology	5990	1.25	7487.50
Radiology	4105	1.50	6157.50
Pediatrics	6335	1.35	8552.25
Allergy/Immunology	1225	1.35	1653.75
Restrooms			1000.00
Total		Total	66399.00

Allowance Category	Grossing Factor	Square Footage
Mechanical Space	0.135	8963.87
Electrical Space	0.02	1327.98
Building		
Circulation	0.14	9295.86
Half Areas	0.015	995.99
	Total	20583.69
Total Square Footage		86,982.69

Net to gross ratios and grossing factors come from the DoD Space Planning Criteria manual.

A comprehensive analysis of the types, square footage, and number of specific rooms is found in the Appendixes. These appendices identify the number of individual offices, exam rooms, conference rooms, and linen closets allocated to each section. The DoD Facility Pricing Guide identifies construction cost per square footage for a medical clinic as \$246.00. Upon application of the area cost factor for El Paso, Texas, the cost per square footage was reduced to \$222.02 per square foot. This factor brings the preliminary cost for the construction of the facility to \$19.31M.

Table 5. Cost Analysis

Construction Cost Factors		
Total Square Feet		86,982.69
Clinic Cost Per Square Foot		\$246.00
Fort Bliss Area Cost Factor		0.95
Size Relationship Ratio		1.74
Size Adjustment Factor		0.95
Adjusted Cost per Square Foot		\$222.02
Preliminary Building Cost		\$19,311,462
Additional Cost Factors	Percentage Factors	Costs
Supporting Facility Cost		
Electric Service, Water, Sewer, Gas, Paving, Walks, Curbs, Gutters, Storm drainage, Site improvement	0.200	\$3,862,292
Intrusion Detection System		\$3,000
Commissioning	0.015	\$289,672
Info Systems	0.060	\$1,158,688
O & M Manuals		\$50,000
Super and Admin	0.057	\$1,100,753
Force Protection	0.020	\$386,229
Contingency	0.050	\$965,573
Installed Medical Equipment	0.100	\$1,931,146
Design Build	0.060	\$1,158,688
Subtotal Cost		\$30,217,504
Inflation Index		1.042
Final Building Cost		\$31,486,638

Source: DoD Facility Pricing Guide

A general planning factor for supporting facilities is 20% of the preliminary building cost. Supporting facilities include but are not limited to items such as electric service, water, gas, sewage, and site improvement. Once other factors such as information systems, force protection and contingency costs were included, the subtotal cost increased to \$30.21M. This number

must be inflated to 2008, which is the predicted start of construction, and the final cost is \$31.46M.

Discussion

Population

A definitive picture of the projected beneficiary population resulting from BRAC was difficult to acquire. There were a number of organizations providing population projections for BRAC but many of them were not communicating. Hence, there were a variety of population projection figures in the field, utilizing different methodologies, which yield different results. This study utilizes the population projections provided by the Community and Family Support Center.

Personnel Costs

The author elected to assume that civilian personnel working in the proposed clinic will be GS workers. This assumption is utilized to standardize costs for salaries. Troop medical clinics responsible for providing care to division soldiers utilize provider assets from the division surgeon to supplement manpower. This study accounts for this additional manpower of 57 providers and identifies them at .5 FTE. The use of this supplemental manpower translates into a savings of \$4.78M per year. Nevertheless, once the 1st AD arrives at Fort Bliss, the number of available providers to supplement primary care manpower may be less. Moreover, the 1st AD surgeon is

aggressively pursuing an initiative that keeps division medical manpower in the division area by constructing robust battalion aid stations to provide healthcare (M.A. Dominguez, personal communication, April 15, 2006). This course of action could totally remove division medical manpower from the TDA environment.

DoD Space Planning Criteria

There is some art associated with the science of utilizing the DoD Space Planning Criteria. The templates are guides and can be utilized for preparing space for a medical center or a small clinic. During the study, it was necessary to discuss space requirements with existing department chiefs and HFPA to ensure that all space and service requirements were accounted for and necessary. One of the main challenges was the consolidation of conference rooms. Almost every template had a provision for a conference room. The task was to provide a proper number of conference rooms to service the facility without being redundant.

DoD Facility Pricing Guide

The DoD Facility Pricing Guide is a helpful tool in predicting Military Construction costs. However, the most current DoD Facility Pricing Guide is based on historic data from the previous 5 years. The price identified may not be completely accurate in today's construction environment. The

price of construction and raw materials has increased significantly in the last year (K.A. Arnette, personal communication, April 26, 2006).

There are limitations in the construction cost provided in this study. One limitation is that the study does not consider the cost of design. The cost of design can range from 4% to 9% of the total cost of construction (usually a alternate funding source). The design cost is a front-end cost and is funded prior to the beginning of construction. Moreover, equipment costs, initial outfitting, and transition costs are not accounted for in this study. These are the factors that are often overlooked and not identified when a construction project is proposed. Often times, the funding for the cost of these items are identified after construction has begun and is submitted as an un-financed requirement.

Rationale For A New Troop Medical Clinic

The Soldier Family Medical Clinic that currently provides primary care to Fort Bliss soldiers and family members is operating at capacity and cannot absorb the tremendous number of beneficiaries that will be arriving at Fort Bliss between 2007 and 2010. An addition to the existing Soldier Family Medical Clinic (SFMC) is possible but causes challenges. First, the only area available for the clinic to expand into is the existing parking lot. Parking is at a premium at the SFMC and forcing the

beneficiaries to walk longer distances to the SFMC would cause a myriad of complaints. Second, the 1st AD will be moving to Biggs Army Airfield. It will be a significant challenge for soldiers to access the SFMC at Fort Bliss when their place of duty is on Biggs Airfield, approximately 4 miles away. It is feasible to presume that the line commanders expect the clinic to be close to their area of operations (M.E. Garr, personal communication, May 17, 2006).

There have been discussions on expanding primary care within WBAMC. This discussion is moot because, primary care within WBAMC is at capacity unless significant adjustments in space allocations are made. Moreover, it is the intent of the hospital to minimize primary care within the facility and focus on specialty care, inpatient care, and the Graduate Medical Education program. To this end, there are discussions on optimizing specialty and inpatient care to facilitate the 1st AD beneficiaries.

Outsourcing Prime Enrollees to the Civilian Network

The El Paso community does not have the capacity to absorb primary care requirements for 48,000 military beneficiaries. This is based on the fact that El Paso is a medically underserved population and is challenged with recruiting and retaining healthcare professionals. El Paso County has some of the lowest numbers in Texas (considering its size and

population) for registered nurses and primary care physicians (see table 6). Moreover, the Army Medical Command has an existing mandate to maximize healthcare within the direct care system.

Table 6. Texas Healthcare Provider Market Analysis

	Direct Patient Care Physicians (2001)	Primary Care Physicians (2001)	Physician Assistants (2000)	Registered Nurses (2000)	Dentists (2000)
Texas Average	156	69.7	10.4	644.9	36.5
El Paso	95.4	38.7	4	437	15.4
Bexar	190.3	78.3	12.5	826.1	42.8
Dallas	208.1	81.9	10.9	796.1	48.8
Haris	199.8	81.9	10.2	740	47.2
Hidalgo	108.1	59.8	8	414.5	15.9
Tarrant	148.6	66.8	6	626.5	37.1
Travis	273.8	114.3	12.8	948.9	63.6
Webb	94.7	47.3	1.6	362.3	9.6

Source: Texas State Board of Medical Examiners

In order to address the shortages of healthcare providers within El Paso, the city council has established a Healthcare Council. The purpose of the council is to "facilitate a cohesive and constructive community-wide healthcare advocacy effort at the local, state, and federal levels" (Elpaso.org, 2006). The Healthcare Council identifies requirements to better position itself to provided services to the El Paso community, as well as, the BRAC population increase.

Conclusion

The ability to provide quality healthcare to the beneficiary population descending upon Fort Bliss as a result of BRAC hinges upon primary care. As stated in the Health Affairs Policy Memorandum 00-001, achieving increased productivity is based in improving business processes and support systems, not

by simply increasing the burden on healthcare providers. BRAC is providing the AMEDD a prime opportunity to provide the right healthcare provider, in the right space, at the right time, with the right equipment. It is incumbent upon healthcare planners to accurately anticipate and project the requirements necessary to support the incoming troops and their families.

This study projects that a total of 61 professional staff and 186 support staff are required to service this population. Salaries required to sustain this requirement will total \$13.67M per year. The infrastructure required to support this healthcare team will consist of 86,982 SF of construction costing \$31.48M. This analysis did not consider additional services such as mental health, preventive medicine, and other services that may be required, or desired in support of the incoming beneficiaries.

Recommendation

Based on the study findings, it is recommended that the AMEDD construct a freestanding Primary Care Clinic at Biggs Army Air Field to service the 1st Armored Division's troops and family members. An option to include mental health, optometry, preventive medicine, and a wellness center should be strongly considered. The addition of these options will obviously significantly affect the construction price; however, it would provide improved access for the beneficiaries.

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Appendix A. Family Practice

Reception Areas					
Function	NSF	Qty	Total	Planning Comments	
Clinic Waiting	1500	1	1500	Minimum. Main Waiting	
Playroom Waiting (GP)	100	1	100	Provide if pediatric patients seen within the clinic	
Reception (GP)	140	10	1400	Minimum. Provide 140 nsf for the first eight providers. Increase 60 nsf for each increment of four providers over the initial eight providers	
Patient Education Kiosk/Alcove	30	1	30	Minimum of one kiosk/alcove per clinic.	
Patient Education Cubicle	30	1	30	Provide if in Clinic Concept of Operations. Includes a computer workstation for patient self-assessment, printing educational brochures, etc	
Patient Education Classroom (GP)	250	1	250	One per clinic if eight providers or less. Provide two classrooms for more than nine providers.	
Public Toilets	50	3	150	Space will be provided in Chapter 6.1	
			0		
Patient Areas					
Function	NSF	Qty	Total	Planning Comments	
Screening, Weights and Measures, Adult Room (GP)	80	5	400	Minimum up to four projected FTE providers. One additional room for increment of four providers or portion	

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Screening, Weights and Measures, Pediatrics Room (GP)	120	1	120	If pediatric services provided, one for increment of eight providers or portion thereof.
Provider Exam Room (GP)	120	70	8400	Two per projected FTE. Minus one for the Isolation Exam Room.
Isolation Exam Room (GP)	140	1	140	One per clinic (negative pressure)
Isolation Toilet (GP)	50	1	50	Single occupancy toilet with diaper changing counter.
Sub-waiting	100	1	100	One per clinic with more than 12 providers.
General Purpose Treatment Room (GP)	175	5	875	Minimum of six projected FTE providers. One additional room for increments of six providers or portion thereof.
General Purpose Treatment Room -Two Bed (GP)	340	1	340	One per clinic. Provide for large clinics with 12 or more providers.
Proctoscopic Procedure Room (GP)	175	1	175	Minimum of one, if in the clinic concept of operations for up to 12 providers. One additional room for increment of 12 providers
Procedure Room Toilet (GP)	50	3	150	One per procedure room
Scope Wash Room (GP)	120	2	240	One per two procedure rooms
EKG Room (GP)	120	1	120	One per clinic if dedicated EKG room is required
Immunization Room (GP)	220	0	0	Minimum. One if there is not a fully operational A/I clinic.
Allergy Injection Room	120	0	0	One if FTE Allergy Technician is projected

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Immunization Waiting/Observation Area

	100	0	0	Minimum. One if there is not a fully operational A/I clinic.
One Person Audio Screening Booth (GP)	120	1	120	If included in the Clinic Concept of Operations
Multi-Person Audio Booth	375	1	375	Hearing screening 4 or 6.
Audio Booth Suite (GP)	375	1	375	An audio booth suite is a two room booth
Vision Screening	120	1	120	One per clinic if included in concept of operations
Blood Drawing Area (GP)	120	2	240	One per clinic with projected FTE Lab Tech add 60 nsf for each chair over one.
Outpatient Cast Room	175	1	175	Provide if in COO
Outpatient Observation/Hydration	120	1	120	One per clinic
Outpatient Non-Stress Testing (GP)	120	1	120	Provide one if in COO
Patient Toilet (GP)	50	3	150	Provide 3 if FTE providers is sixteen or more with a maximum of 3 toilets

Staff and Administrative Areas

Function	NSF	Qty	Total	Planning Comments
Provider Office (GP)	120	35	4200	One per projected FTE staff provider.
Nurse Manager Office	120	2	240	One per projected FTE nurse manager
Nurse Workroom	120	4	480	Minimum. Add 120 nsf for each increment of four FTE nurses. Round up from .5
NCOIC/LCPO/LPO Office	120	1	120	One per projected FTE
Advice Nurse Office	120	4	480	One per projected FTE
Appointment Clerk Cubicle	60	8	480	Per projected FTE appointment clerk (Med Clerks)

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Private Office	120	5	600	One per projected FTE requiring a private office. Ex. Group practice manager, nurse educator and staff who interviews or counsels patients
Administrative Cubicle	60	15	900	Per projected FTE requiring a dedicated work space but not a private office.
Records Storage Area	120	1	120	Minimum.
Copy Room	100	1	100	For copier/fax/mailbox distribution
Forms/Literature Storage	100	1	100	one per clinic
Conference Room (GP)	300	2	600	One per department with 8 officers
Staff Lounge (GP)	140	1	140	Minimum 140 nsf for 10 FTE on peak shifts. Add 5 nsf for each peak shift FTE over 10.
Personal Property Lockers (GP)	25	1	25	Minimum for the first 10 FTEs on peak shift. Add 2.5 nsf for FTE over 10.
Staff Toilets (GP)	50	1	50	one for the first 15 FTE on peak shifts.

Clinic Support Areas

Function	NSF	Qty	Total	Planning Comments
Clean Utility (GP)	180	1	180	For more than 12 FTEs
Soiled Utility (GP)	150	1	150	For more than 12 FTEs
Crash Cart Alcove	20	1	20	One per clinic. Can be shared between several clinics if fully accessible to all
Litter/Wheelchair Storage	60	1	60	One per clinic
Equipment Storage	100	1	100	One per clinic
Satellite Lab	60	0	0	One per clinic if in COO

Physical Exam

Function	NSF	Qty	Total	Planning Comments
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Reception (GP)	140	1	140	Minimum
Waiting & Form Writing	300	1	300	Per station. One station per 40 exams per day. (assume 100 exams per day)
History Station	60	3	180	Per station. One station per 40 exams per day.
Screening (GP)	80	2	160	One station per 50 exams per day
Exam Room (GP)	120	0	0	Two per projected FTE (already accounted for)
EKG Room (GP)	120	1	120	Minimum one up to 100 exams per day, additional station per 80 exams per day
Specimen Toilet (GP)	50	1	50	Minimum one for up to 100 exams per day. Provide additional toilet for increments of 80 exams per day over the initial 100 exams. Maximum 3 toilets.
Lab, Blood Collection (GP)	120	0	0	If in COO
Vision Testing (Screening only)	120	1	120	Minimum. Increase by 60 nsf per 60 exams
Optometric Eye Lane (GP)	180	1	180	If in COO
Audio Booth (GP)	375	0	0	Six person audio booth if more than 48 physical exams per day
Dental Screening	100	0	0	Provide one if number of physical exams per day exceeds 100 per day.
ENT Exam Station (GP)	120	0	0	If number of physical exams per day exceeds 150 per day
Chest X-Ray Station	120	0	0	One per clinic when Chest X-ray station is programmed.
Physical Exam Patient Areas				

Function		Planning Comments		
Function	NSF	Qty	Total	Planning Comments
Reception (GP)	140	1	140	One per clinic
Waiting & Form Writing (w/alcove)	140	1	140	One per clinic. For additional chairs over six, add 16 nsf per seat.
Exam Room (GP)	120	1	120	One per Physical exam area.
EKG Room (GP)	120	1	120	One per clinic
Vision Testing (Screening only)	120	1	120	One per clinic
Audio Booth (GP)	120	0	0	One per double walled booth
Screening (GP)	80	1	80	One per clinic
Net Square Footage			27480	
Net to Gross Ratio			1.35	
Total Square Footage			37098	
Source: The DoD Space Planning Criteria was used as a reference to generate the space requirements				

Appendix B. Pediatric Department

Reception Areas					Planning Comments
Function	NSF	Qty	Total		
Clinic Waiting	500	1	500		Minimum. Provide five seats per each projected FTE provider. Provide 16 nsf for 95% of the seats and 25 nsf for 5% of the seats (handicapped waiting). Main waiting area. Recommend providing 67% of space for a main waiting area.
Isolation Waiting	60	1	60		Minimum. Isolation waiting: Negative pressure. Recommend providing 33% of space for a isolation waiting area. Provide 16 nsf for 95% of the seats and 25 nsf for 5% of the seats (handicapped waiting). If programming does not allow for separate services (isolation waiting vs. main waiting), then combine waiting space appropriately
Playroom Waiting (GP)	120	1	120		One per clinic
Toy Storage Area	60	1	60		One per clinic
Reception (GP)	140	1	140		Minimum. Provide 140 nsf for the first eight providers. Increase 60 nsf for each increment of four providers over the initial eight providers.
Patient Education Cubicle	30	1	30		Provide if in Clinic Concept of Operations. Includes a computer workstation for patient selfassessment, printing educational brochures, etc.
Patient Education Classroom	250	1	250		Provide one classroom for up to eight projected FTE providers. If nine or more projected FTE providers, then maximum two classrooms.
Lactation Room	100	0	0		Minimum. One room per clinic
Public Toilets	0	0	0		Space will be provided
Patient Areas					

Function		NSF	Qty	Total	Planning Comments
Pediatric Screening/Weights & Measures Room (GP)		120	2	240	Minimum up to four projected FTE providers. One additional room for increment of four providers or portion thereof.
Vision /Hearing Screening Room		120	1	120	One per clinic.
Pediatric Exam Room		120	16	1920	Two per projected FTE staff provider minus one isolation exam room. Do not count residents as providers. Resident's exam rooms are included in the Residency Functional Area.
Isolation Exam Room (GP)		140	1	140	One per Pediatric Clinic. (negative pressure)
Isolation Toilet (GP)		50	1	50	Single occupancy toilet with diaper changing counter. Located in the Isolation Exam Room.
Treatment Room (GP)		175	2	350	Minimum up to six projected FTE providers. One additional room for increment of six providers or portion thereof.
Observation/Hydration Room		120	1	120	One per Pediatric Clinic.
Immunization Room (GP)		220	1	220	One per Pediatric Clinic, if required in Clinic Concept of Operations.
Waiting - Immunization/Observation		120	1	120	One per Pediatric Clinic, if required in Clinic Concept of Operations.
Patient Toilet (GP)		50	1	50	One if number of projected FTE providers is between three and eight. Provide two toilets if number of projected FTE providers are between nine and fifteen. If number of projected FTE providers is sixteen or more, provide three toilets. Maximum of three toilets.
Staff and Administrative					
Function		NSF	Qty	Total	Planning Comments
Provider Office (GP)		120	8	960	One per projected FTE staff provider. Do not count residents as providers. Resident's exam rooms are included in the Residency Functional Area.
Nurse Manager Office		120	1	120	One per projected FTE Nurse Manager

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Nurse Workroom	120	1	120	Minimum. Add 40 nsf for each projected FTE Nurse above 4
NCOIC/LCPO/LPO Office	120	1	120	One per projected FTE
Advice/Triage Nurse Office	120	0	0	Accounted for in Primary Care
Private Office	120	2	240	One per projected FTE requiring a private office. See Chapter 2.1 (General Administration), paragraph 2.1.3. Some examples are Group Practice Manager, Nurse Educator, Health Care Integrator, any staff who interviews or counsels patients.
Administrative Cubicle	60	1	60	Per projected FTE requiring a dedicated workspace but not a private office
Social Worker Office	120	0	0	One per projected FTE Social Worker
Patient Records Storage	120	1	120	Minimum
Copy Room	100	2	200	For copier, Fax, Mailbox
Forms/Literature Storage	100	1	100	One per clinic
Conference Room (GP)	300	1	300	Minimum.
Staff Lounge (GP)	140	1	140	Minimum.
Personal Property Lockers	25	1	25	Minimum for first 10 FTEs on peak shift. For staff without dedicated office cubicle
Staff Toilets	50	1	50	Minimum of one for first 15 FTE on peak shift .
Clinic Support Areas				
Function	NSF	Qty	Total	Planning Comments
Clean Utility (GP)	150	1	150	For 7 - 12 projected FTE providers.
Soiled Utility (GP)	120	1	120	For 7 - 12 projected FTE providers.
Litter/Wheelchair Storage	60	1	60	One per clinic.

Crash Cart Alcove	20	1	20	One per clinic. Can be shared between several clinics if fully accessible to all.
Equipment Storage	100	1	100	One per clinic.
Net Square Footage			6335	
Net to Gross Ratio			1.35	
Total Square Footage			8552.25	
Source: The DoD Space Planning Criteria was used as a reference to generate the space requirements				

Appendix C. Pharmacy Department High Volume Pharmacy				
Administrative Support Areas				
Function	NSF	Qty	Total	Planning Comments
Pharmacy Director Office	120	1	120	Private office. Standard furniture.
Private Office	120	0	0	Per assigned FTE requiring a private office.
NCOIC/LCPO/LPO/SMT Office	120	1	120	
Secretary/ Reception	120	0	0	When authorized FTE.
Administrative Cubicle	60	4	240	Per authorized FTE requiring a dedicated
Staff Lounge (GP)	140	1	140	Minimum. See Section 6.1 for increase in size
Conference Room	250	1	250	One per department when eight or more FTE pharmacist
Personal Property lockers	20	15	300	Minimum
Staff Toilets	50	1	50	Minimum for 10 staff, add space for additional staff
Janitor closet	40	1	40	One per department
Waiting Area	400	1	400	One per pharmacy
Pharmacy				
Bulk Storage (GP)	500	1	500	2 refrigerator, 1 Freezer, walk-in vault, 3 workstations
Manufacturing and prepack (GP)	200	1	200	
Dispensing and storage (GP)	500	1	500	Includes consultation room, 8 dispensing windows, refrigerator, Baker cells, preparation and holding areas, etc.
Unit Dose/IV Admixture (GP)	500	1	500	One if average monthly admixture preparation is greater than 8,000. Includes IV Bulk supply, order entry, ward supplies and packaging, checking station, etc

Unit Dose Preparation	200	1	200	
Net Square Footage			3560	
Net to Gross Ratio			1.25	
Total Square Footage			4450	
Source: The DoD Space Planning Criteria was used as a reference to generate the space requirements				

Appendix D. Pathology Department Medium Clinical Laboratory				
General Areas				
Function	NSF	Qty	Total	Planning Comments
Reception	200	1	200	1 Per Department
Blood Drawing Area	600	1	600	Add 60 sq in excess of two
Waiting Area	400	1	400	Three seats per station
Specimen Toilet	50	4	200	1 lav/30 specimens/day
Point of Service	100	1	100	Used in clinics only
Laboratory Functions				
Function	NSF	Qty	Total	Planning Comments
Shipping & Receiving	200	1	200	Medium
Chemistry	630	1	630	Medium
Hematology	420	1	420	Medium
Histology	220	1	220	Medium
Urinalysis	270	1	270	Medium
Microbiology	250	1	250	Medium
Histopathology	220	0	0	Medium
Microscope Slide Storage	60	1	60	
Paraffin Block Storage	60	0	0	One per histopathology
Solution and Media Preparation	150	1	150	
Decontamination Room	100	1	100	One per medium lab
Tissue Storage	100	0	0	One per histology department
Glassware washing	150	1	150	Medium
Storage/Central	600	1	600	Medium
Staff and Administrative Areas				
Function	NSF	Qty	Total	Planning Comments
Pathology Director	120	1	120	One per projected FTE
Secretary with waiting	120	0	0	One per projected FTE
Private office	120	2	240	One per projected FTE requiring office

NCOIC Office	120	1	120	One per projected FTE
Conference/Training	200	1	200	Minimum for staff of eight officers
Administrative Cubicle	60	5	300	One per FTE authorized
File	120		0	One per Department
Copy Room	120	1	120	One per Department
Staff lounge	140	1	140	Minimum
Personal Lockers	20	10	200	
Net Square Footage			5990	
Net to Gross Ratio			1.25	
Total Square Footage			7488	
Source: The DoD Space Planning Criteria was used as a reference to generate the space requirements				

Appendix E. Radiology Department				
Reception Area				
Function	NSF	Qty	Total	Planning Comments
Waiting Room	180	1	180	Clinic Minimum. Add 80 nsf for each additional diagnostic room >3
Clinic Reception	140	1	140	Minimum. Provide an additional 10 nsf for every diagnostic room over 3. Max 200 nsf
Patient Education Kiosk/Alcove	30	1	30	One per clinic
Public Toilets	0	0	0	Space provided for in common areas
Main Radiology				
Function	NSF	Qty		Planning Comments
Patient Sub-waiting Area	60	4	240	One per each four diagnostic room
Patient Toilet	50	2	100	See section 6.1
Patient Litter Holding	60	0	0	Hospital only
General Radiographic	320	0	0	Per room authorized. See formula in Section 5.4.6 to determine rooms
Radiographic Chest	250	0	0	Per room authorized. See 5.4.6
Radiographic/Fluoroscopic (GP)	320	0	0	Per room authorized. See 5.4.6
Dedicated Toilet	50	2	100	One per Radiographic/Fluoroscopic room
Darkroom Film Processing (GP)	100	0	0	One room for equal to or less than three Diag rooms
Darkroom Film Processing	120	0	0	One room for greater than three Diagnostic rooms
Daylight Film Processing (GP)	100	0	0	One per four diagnostic rooms

Mammography (GP)	120	0	0	Space per mammography room
Mammography, Stereotactic	170	0	0	If in clinic COO
Mammography Processing (GP)	110	0	0	Minimum. One per two Mammography rooms
Ultrasound (GP)	180	2	360	Space per ultrasound room See formula
Dedicated Ultrasound Toilet	50	0	0	One per ultrasound room
Bone Densitometer	120	0	0	If in clinic COO
Dressing Room/ Cubicle	50	2	100	One per General Radiographic, Radiographic/Fluoroscopic Room, Ultrasound room
Staff and Administrative Areas				
Function	NSF	Qty		Planning Comments
Staff Radiologist	120	2	240	One per projected FTE
NCOIC/LCPO/LPO/SMT	120	1	120	One per clinic
Quality Assurance Office	120	1	120	One per projected QA staff
Mammography Scheduler/Tracking Office	60		0	One per radiology clinic with mammography services
Transcription work area	60	2	120	Per FTE projected
Administrative Cubicle	60	5	300	Per assigned FTE
Private Office	120	1	120	One per projected FTE that requires a private office
Phase II Instructor Office	120	0	0	One per phase II instructor
Phase II Personal Property Locker Area	20	0	0	Minimum. 2 nsf per student
Copy room	100	1	100	for copier, fax, mailbox
Radiology Conference / Classroom	250	0	0	One per department
Staff Lounge	140	1	140	Minimum, if at least 10 FTEs on peak shift
Personal Property Lockers (GP)	20	1	20	Personal property lockers

Staff Toilets (GP)	50	2	100	Minimum for total clinic staff of at least 10.
Clinic Support Areas				
Function	NSF	Qty		Planning Comments
Crash Cart Alcove	20	1	20	One per clinic
Litter and Wheelchair Storage	25	4	100	One per two diagnostic rooms
Mobile Rad Unit Storage Alcove	40	1	40	One per mobile radiographic unit stored in radiology
Mobile C-Arm Storage Alcove	40	1	40	One per mobile C-Arm radiographic unit stored in Radiology
Film Sorting Area	150	0	0	One area per darkroom
Film File Storage - Fixed Shelves	250	1	250	Required if any conventional radiology is included
Film Files Storage - Mobile Shelves	250	0	0	Required if any conventional radiology is included
Digital Image Storage	120	3	360	Minimum. Add 10 nsf per diagnostic rooms greater than five.
Quality Assurance Area (GP)	120	0	0	One per projected QA FTE
Non-Residency Viewing/Consultation Area	120	1	120	Minimum. Provide one per two diagnostic rooms.
Residency Viewing/Consultation Area	250	0	0	Consultation area
Tele-Radiology	225	1	225	Required if in COO
On Call Room	120	0	0	If in COO
On Call Toilet/Shower	60	0	0	
Tele-Rad Digital Image Storage	100	0	0	May be added to main radiology digital storage room during design
Equipment storage	100		0	One per clinic
Linen Alcove	10	4	40	One per diagnostic Room

Clean Supply & Equipment Area	160	1	160	160 nsf=4 diagnostic rooms
Trash and Linen Collection	80	1	80	One per clinic
Dedicated Janitors' Closet	40	1	40	One for radiology department
Net Square Footage	4105			
Net to Gross Ratio	1.5			
Total Square Footage			6158	
Source: The DoD Space Planning Criteria was used as a reference to generate the space requirements				

Appendix G. Allergy/Immunology

Staff and Administrative Areas				
Function	NSF	Qty	Total	Planning Comments
Reception/Control	140	1	140	None
Work Area	60	1	60	None
Supply/Record	120	1	120	None
Treatment				
Function	NSF	Qty		Planning Comments
Waiting/Holding	345	1	345	None
Immunization Room	120	2	240	None
Allergy Injection Room	120	1	120	None
Prep Work Room	200	1	200	None
Net Square Footage			1225	
Net to Gross Ratio			1.35	
Total Square Footage			1654	
Source: The DoD Space Planning Criteria was used as a reference to generate the space requirements				

Appendix H. ASAM Model Output

TDA PARA(S)		PROVIDER (CAT 1 / CAT 2) TDA REQ(S)	
0	0	0	
0	0		
0	0	SUPPORT (CAT 3-4-5) TDA REQ(S)	
		0	
		TDA AUTHORIZATION(S)	
		0	
		CURRENT WORKING STRENGTH	
		0	
WORK CENTER(S) DATA:			
0	0-17 TRICARE PRIME ENROLLED	PROVIDER PHYSICIAN	SUPPORT RN
0	18-64 TRICARE PRIME ENROLLED	0	0
0	65+ TRICARE PRIME ENROLLED (x 2.5)	PHY EXT	LPN
0	NON-PRIME USERS (0-17, 3 or more visits/year)	0	0
0	NON-PRIME USERS (18-64, 3 or more visits/year)	CONTRACT	NA
0	NON-PRIME USERS (65+ x 2.5, 3 or more visits/year)	0	0
0	AD TRAINEES (BCT, AIT, OSUT, ITRO - average daily student load)	BMM	MED CLK
0	TOTAL PRIMARY CARE POPULATION SUPPORTED	0	0
0	ANNUAL # OF IMMUNIZATIONS ADMINISTERED IN THE CLINIC(S)	RES/FEL	CONTRACT
0		0	0
X25	20148		

X26	20148	AVG MONTHLY # OF MEDICAL RECORDS MAINTAINED WITHIN THE CLINIC(S)	BMM	<u>0</u>
X27	1	PC ANNUAL NUMBER OF CLINIC / APV / OBSERVATION VISITS REPORTED	0	0
	0	PE ANNUAL NUMBER OF CLINIC VISITS REPORTED		
	0	AVN MED ANNUAL NUMBER OF CLINIC VISITS REPORTED		

POPULATION SUPPORTED FACTORS:

X1	0.5	FP FRACTION OF PEDS POPULATION SEEN (0-17)
X1a	0.5	PEDS FRACTION OF PEDS POPULATION SEEN (0-17)
X2	0.9	FP FRACTION OF ADULT POPULATION SEEN (18-64)
X2a	0.1	INT MED FRACTION OF ADULT POPULATION SEEN (18-64)
X3	0.0	FP FRACTION OF ELDERLY POPULATION SEEN (65+)
X3a	1.0	INT MED FRACTION OF ELDERLY POPULATION SEEN (65+)
X4	1.0	FP FRACTION OF AD TRAINEES SEEN
X5	0.19	FP SPECIALTY CARE (19% OF TOTAL POPULATION SUPPORTED)
X6	1,178	POPULATION FACTOR

FORECASTED WORK CENTER(S) DATA:

X7	18475	0-17 TRICARE PRIME ENROLLED
X8	31194	18-64 TRICARE PRIME ENROLLED
X9	0	65+ TRICARE PRIME ENROLLED (x 2.5)
X10	0	NON-PRIME USERS (0-17, 3 or more visits)
X11	0	NON-PRIME USERS (18-64, 3 or more visits/year)
X12	0	NON-PRIME USERS (65+ x 2.5, 3 or more visits/year)
X13	0	AD TRAINEES (BCT, AIT, OSUT, ITRO - average daily student load)
	49669	TOTAL PRIMARY CARE POPULATION SUPPORTED
X14	0	FEMALE POPULATION =>17 YRS OF AGE
X15	0.0	OTHER FACTOR(S)
X16	0	PROGRAMMED RESIDENTS/FELLOWS

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X17 0 ADDITIONAL ANNUAL READINESS HOURS FOR MILITARY PROVIDERS
 X18 0 HOSPITAL OWNED FLIGHT SURGEON / PA AUTHORIZED
 X19 0 # OF CLINICS (STAND-ALONE (OUTSIDE HOSPITAL) PRIMARY CARE CLINICS ONLY IF COMBINED INTO THIS SECTION)
 X20 2751 ANNUAL # OF IMMUNIZATIONS ADMINISTERED
 X21 48498 # OF MEDICAL RECORDS MAINTAINED
 0 AD POPULATION
 X22 0 AVG NUMBER OF SOLDIERS PROCESSED PER DAY
 X23 0 ANNUAL # OF PERSONNEL PROCESSED THRU MEDICAL ONE-STOP
 X24 0 ADDITIONAL PROVIDER(S) REQUIRED TO SUPPORT GME PROGRAM

NEW FAM CARE CTR-PC MANPOWER EQUATION APPLICATION 247.0

SPT
STAFF

PROF STAFF

COMMENT

Y1 = ((X7 * X1) + (X8 * X2)) / 1178	31.674	1	FAM PRAC	32.000	
= (X8 * X2a) / 1178	2.648		PC	3.000	
= (X7 * X1a) / 1178	7.842		PEDS PC	8.000	
Y2 = IF (X27 = 0, 0, (X14 * X5) / 3600)	0.000		SPECIALTY		
Y3 = (X15)		2	CARE	0.000	
			OTHER	0.000	
Y4 = (X17 / 1740)		3	ADD		
Y5 = (X19 * 311.88) / 1740			READINESS	0.000	
			FLIGHT	0.000	
			LINE		
Y6 = (Y1 + Y3) * 0.5			RN	21.500	
Y7 = (Y1 + Y3) * 1.8			LPN / NA	77.400	
Y8 = (Y1 + Y3) * 0.5			MED CLK	21.500	
Y9 = (Y1 / 10)			ADVICE NURSE	4.300	
Y10 = IF (X25 = 0, 0, (X21 * 0.210) / 1740)			IMMUNIZATIONS	0.332	
Y11 = IF (X26 = 0, 0, (X22 / 4000)			MED RECORDS	12.125	
Y12 = (X19 * 2)		4	CLINIC		
			OIC'S	0.000	
Y13 = (X22 * 15.225) / 145			SUPPORT	0.000	
			SMRC	0.000	

Expanding Primary Care 83

Y14 = (X23 * 3.217) / 1740		ONE-STOP	0.000
Y15 = (X16)		RES/FEL	0.000
		GME PRG	
Y16 = IF (X6 * 0.10 >= 1, 1, X6 * 0.10)		DIR	0.000
Y17 = (X16 / 10)			
		GME PRG ADM	0.000
Y18 = (X24)			
	5	ADD GME	0.000
		PHY	
		LAB	9.000
			23.000
		PHARM	7.000
			12.000
		RAD	2.000
			14.000
	6		186.157
		TOTAL(S)	61.000
			186.000

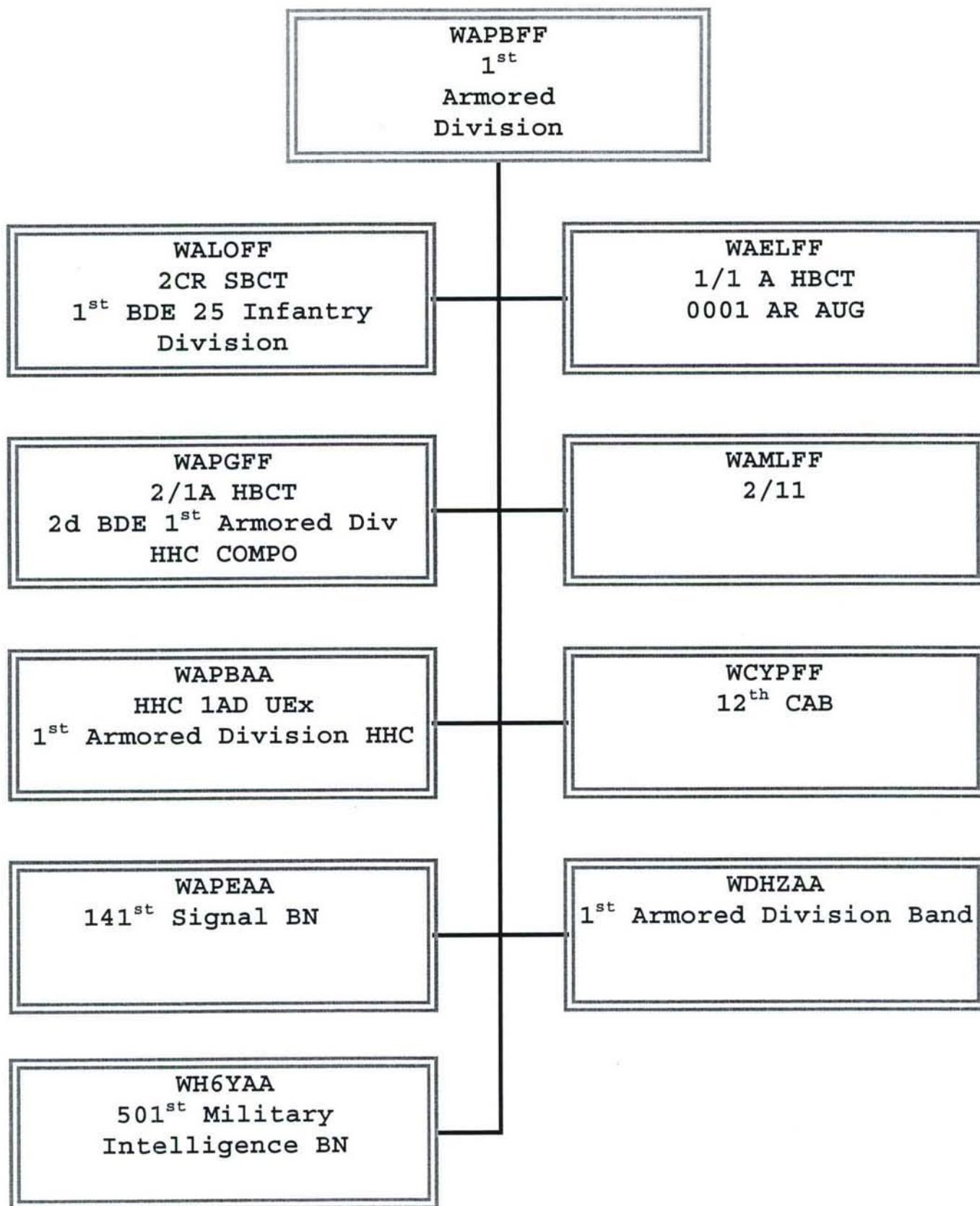
COMMENTS

1 15.05 HOURS PER MONTH FOR MILITARY PROVIDER READINESS WAS ACCOUNTED FOR IN THE DEVELOPMENT OF THE 1178

POPULATION EMPANELMENT NUMBER

- 2 0
- 3 0
- 4 0
- 5 0

Source: The ASAM III Model



Appendix J- 1st Armored Division Physicians and Assistants

<u>WAL0FF - 2CR SBCT</u>	<u>SUBUNIT</u>	<u>PHYSICIAN</u>	<u>PA</u>
WAPBAA	HHC, 1ST ARM DIV	1- 60A - O5 (DIV SURG)	
WAK5AA	2D BN 8 TH FA RGMT		1 - 65D - O3
WASF AA	1 ST BN 5 TH INF RGMT	1 - 62B - O3	1 - 65D - O3
WDA6AA	1 ST BN 24 TH INF RGMT	1 - 62B - O3	1 - 65D - O3
WFBVAA	3D BN 21 ST INF RGMT	1 - 62B - O3	1 - 65D - O3
WJHKAA	2D SQDN 14 TH CAV	1 - 62B - O3	1 - 65D - O3
WAL0AA	1 ST BDE 25 TH INF DIV	1 - 62B - O4	
WE35AA	25 TH SPT BN	1 - 62B - O4 1 - 62B - O3	1 - 65D - O4 3 - 65D - O3
<u>WAE LFF - 1/1A HBCT</u>			
WAEQAA	2D BN 3D FA RGMT		1 - 65D - O3
WAE3AA	1 ST BN 36 TH INF RGMT	1 - 62B - O3	1 - 65D - O3
WH96AA	501 ST SPT BN	1 - 62B - O4 2 - 62B - O3	1 - 65D - O4 2 - 65D - O3
<u>WAPGFF - 2/1A HBCT</u>			
WH28AA	4 TH BN 27 TH FA RGMT		1 - 65D - O3
WAPSAA	1 ST BN 6 TH INF RGMT	1 - 62B - O3	1 - 65D - O3
WAPWAA	2D BN 6 TH INF RGMT	1 - 62B - O3	1 - 65D - O3
WAPYAA	1 ST BN 35 TH ARM RGM	2 - 62B - O3	1 - 65D - O3
WH98AA	47 TH SPT BN	1 - 62B - O4 2 - 62B - O3	1 - 65D - O4 2 - 65D - O3

Source: U.S. Army Force Management Support Agency at <https://webtaads.belvoir.army.mil/usafmsa/>

Appendix J con't- 1st Armored Division Physicians and Assistants

<u>WAMLFF - 2/1 INF</u>	<u>SUBUNIT</u>	<u>PHYSICIAN</u>	<u>PA</u>
WAM0AA	1 ST BN 7 TH FA RGMT		1 - 65D - O3
WAM3AA	1 ST BN 26 TH INF RGM	1 - 62B - O3	1 - 65D - O3
WAM8AA	1 ST BN 77 TH ARM RGM	1 - 62B - O3	1 - 65D - O3
WH87AA	299 TH SPT BN	1 - 62B - O4 2 - 62B - O3	1 - 65D - O4 2 - 65D - O3

WCYPFF - 12TH CBT AVN BDE

WCYPAA	12 TH AVN BDE HHC		1 - 65D - O3
WFAKAA	5 TH BN 158 TH AVN RGM		1 - 65D - O3
WC3EAA	3D BN 158 TH AVN RGM		1 - 65D - O3
WC03AA	2D BN 159 TH AVN RGM		1 - 65D - O3
WDU1AA	3D BN 159 TH AVN RGM		1 - 65D - O3
WJERAA	601 ST SPT BN		1 - 65D - O3

Source: U.S. Army Force Management Support Agency at
<https://webtaads.belvoir.army.mil/usafmsa/>